4. SAMPLING LOCATION AND FREQUENCY

This section presents the required sample locations and frequency to support the V-Tank soil confirmation and secondary waste stream sampling objectives outlined in Section 3 of this FSP.

4.1 QA/QC Samples

In addition to primary project samples, QA/QC samples will be collected to establish quantitative and qualitative criteria necessary to support the intended regulatory action and describe the acceptability of the data by providing information comparable to and representative of actual field conditions.

As discussed in Section 3.2.2, QC samples consisting of field blanks and equipment rinsate blanks will be used to determine field accuracy. Field blanks and equipment rinsate blanks will be collected only for those samples submitted to the laboratory for analysis. Quality control (duplicate) samples are used to measure field precision. Duplicate samples will be collected at an interval of one per every 10 samples. The QA/QC sample results will be evaluated as outlined in the QAPjP (DOE-ID 2000).

4.2 Sampling Locations

The following sections describe the intended sample locations, including the rationale for location selection and the analytical methods necessary to meet the data needs presented in Table 3-1. The SAP table in Appendix A provides the intended sample quantities and analyses for sample type. Tables 3-1 and 3-2 in the QAPjP (DOE-ID 2000) identify the container volumes, types, holding times, and preservative requirements that apply to all soil and liquid samples collected under this FSP.

4.2.1 DQO Decision Statements 1 and 2, Excavation Floor Soil Surveys

Excavation of Tanks V-1, V-2, and V-3 to their spring line will result in an uneven soil floor with an area of approximately 1,200 ft^2. Excavation of Tank V-9, the valve box, and all ancillary piping and equipment will result in approximately 500 ft^2 of exposed soil. All exposed soil will be systematically surveyed for beta and gamma-emitting radionuclides and elevated concentrations of VOCs. All soil hot spots, radiological and hazardous, will be flagged. Following the survey, flagged areas will be hand or machine excavated until field instrumentation indicates the VOC radiological presence is below background. VOC instrumentation includes flame or photoionization detectors; radiological instrumentation includes beta/gamma detectors.

4.2.2 DQO Decision Statement 3, Excavation Floor Soil Sampling

Verification of remediation goals entails the collection and laboratory analysis of soils collected from the floor of the tank excavation. The floor includes soils from the tank's spring lines to the bottom of the tanks, as well as soils beneath the bottom of the tanks. The sampling strategy combines both biased and simple random sampling to ensure remediation and closure goals are met.

Biased samples, if identified, will be collected at locations where the soil is discolored or otherwise indicative of potential contamination and/or where the soil survey indicates elevated radiological activity or VOC concentrations. At each biased sample location, two shallow surface samples will be collected: 0 to 2 ft and 2 to 4 ft.

The random sampling design assumes an acceptable confidence level of 90%. Assume that the absolute margin of error that can be tolerated is 10% of the FRG for Cs-137, which is 23.3 pCi/g, with 2.3 pCi/g the acceptable margin of error. A 10% probability of exceeding that error is acceptable. Further

assume that the standard deviation of the Cs-137 analyses is relatively low (5 pCi/g) and the total population is very high relative to the number of samples to be collected. The number of measurements or samples required from beneath the tanks is then 15 (Gilbert 1987). In order to ensure completeness goals are achieved, a total of 20 samples will be collected from 10 sample locations. Therefore, in addition to the judgment samples, 10 additional sample locations chosen randomly from a 5- by 5-ft grid system located on the floor of the tank excavation will be identified. Two shallow surface samples will be manually collected from each location at depths of 0 to 2 ft and 2 to 4 ft. The excavation floor sample grid and identified sample locations are shown on Figure 4-1. The tanks will be removed when soil is excavated to their spring lines. To ensure that the soil from the spring line to the tank's bottom is adequately characterized to achieve FRGs, additional samples will be collected. Using the sample locations identified in Figure 4-1, samples will be collected at 2-ft intervals until the tank bottom level is reached. Once the tank bottom level is reached, samples will be collected, as specified above. Because the excavation floor will be uneven, it is difficult to predict the number of samples that will be collected to reach the tank bottom level. For the Table A-1 SAP tables, assume that 3 samples will be collected at each location before the tank bottom level is reached.

Excavation of Tank V-9, the TAN-1704 valve pit, and ancillary piping sections not excavated as part of the Tanks V-1, V-2, and V-3 removal will be accomplished using individual trench boxes. Soils below each of these units will be surveyed for alpha-emitting and VOC contaminants. Hot spots will be excavated. Samples collected under Tank V-9, the TAN-1704 valve pit, and ancillary-piping sections will be in addition to samples required under Tanks V-1, V-2, and V-3.

For the excavation under Tank V-9 and the TAN-1704 valve pit, biased samples (if identified) and random samples will be collected. Four shallow surface samples (0 to 2 ft and 2 to 4 ft) will be collected from two locations under both the valve pit and Tank V-9, for a total of eight samples. For ancillary piping sections, biased samples (if identified) and random samples will be collected. The frequency of the sample locations will be, at a minimum, one sample location per 20 ft of piping section. At each sample location, two shallow surface samples (0 to 2 ft and 2 to 4 ft) will be collected.

4.2.3 DQO Decision Statement 4, Secondary Waste Sampling

V-Tank remediation secondary waste includes all waste generated except the tanks, tank contents, excavated soil, and ancillary excavated piping, equipment, and debris. Secondary waste will either be exposed to tank/piping, tank contents or excavated soil. Characterization of secondary waste exposed to one or more of these waste matrices will be based upon known radiological and analytical data of the original waste matrix. These data indicate that secondary waste resulting from contact with tank external, piping, or excavated soil will be mixed low-level waste with hazardous constituent concentrations below LDR treatment standards. The data also indicate that secondary waste resulting from contact with tank contents will be mixed low-level Toxic Substances Control Act (TSCA) waste with hazardous constituent concentrations above LDR treatment standards, thereby requiring macroencapsulation to meet LDRs.

There will be instances, however, when secondary waste is generated and the source and extent of exposure to "primary" waste are unknown. Unknown waste sources will be addressed on a case by case basis, but will result in the collection and analysis of samples. These samples will be composited as much as possible to reduce potential exposure and minimize analysis costs.

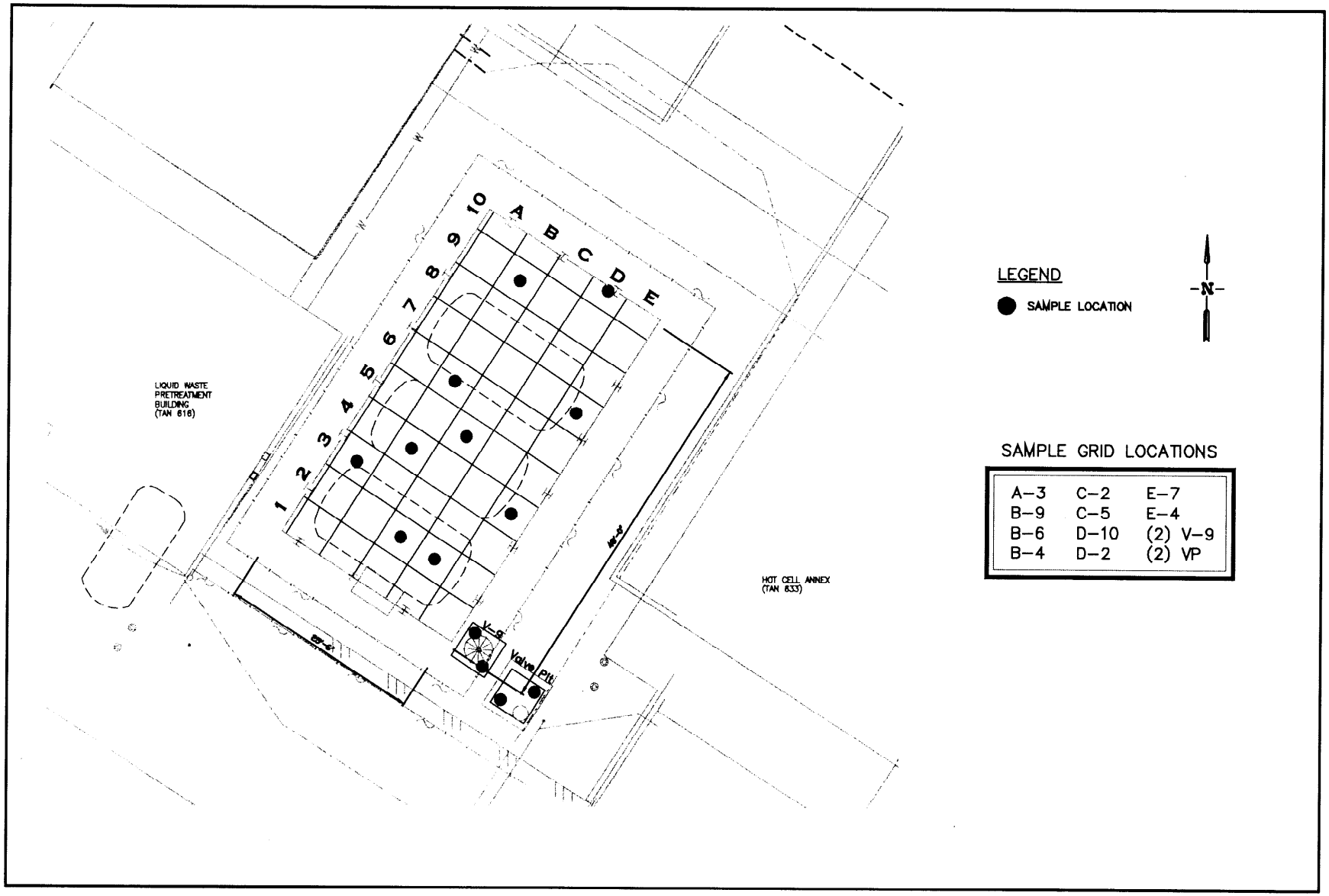

Figure 4-1. Excavation floor sample locations.

5. SAMPLING DESIGNATION

Samples will be identified with a unique code and arranged in a Sampling and Analysis Plan table and database.

5.1 Sample Identification Code

A random character identification code made up of 10 characters will be used to uniquely identify all samples. Uniqueness is required to prevent the same identification code from being assigned to more than one sample and for maintaining consistency.

The first designator of the code, 1, means the sample originated from WAG 1. The second and third designators, RA, mean the sample was collected in support of remedial action activities. The next three numbers will be unique identifiers assigned by the INEEL SMO. Next, a two-character set (e.g., 01, 02) will be used to designate field duplicate samples. The last two characters will refer to a particular analysis and bottle type.

For example, a sample collected in support of the grid location soil sampling activities might be designated as 1RA20101R4, where (from left to right):

- **1** designates the sample as originating from WAG 1
- **RA** designates the sample as being collected for remedial action activities
- **201** is an INEEL SMO-generated unique identifier
- **01** designates the type of sample (01 = original, 02 = field duplicate)
- **R4** designates gamma spectrometric analysis.

The IEDMS database will be used to record all pertinent information associated with each sample identification code. Preparation of the plan database and completion of the SMO request for services are used to initiate the sample and sample waste tracking activities performed by the SMO.

5.2 Sampling and Analysis Plan Table/Database

5.2.1 General

A SAP table format was developed to simplify the presentation of the sampling scheme for project personnel. The following sections describe the information recorded in the SAP tables presented in Appendix A. The SAP table entries are limited to grid location soil samples. Judgmental soil samples and secondary waste samples that may be collected are difficult to predict at this time, so the SAP tables indicate several judgment and secondary waste samples that may be used.

5.2.2 Sample Description Fields

The sample description fields contain information relating to individual sample characteristics.

5.2.2.1 Sample Identifier. The sampling activity field contains the first six characters of the assigned sample number. The entire sample number will be used to link information from other sources (field data, analytical data) to the information in the SAP tables for data reporting, sample tracking, and completeness reporting. The analytical laboratory will also use the sample number to track and report analytical results.

5.2.2.2 Sample Type. Data in this field will be selected from the following:

REG	for a regular sample
QC	for a QC sample.

5.2.2.3 Media. Data in this field will be selected from the following:

Soil	for spring line and excavation floor soil samples
Waste	for secondary waste samples
Water	for QA/QC samples.

5.2.2.4 Collection Type. Data in this field will be selected from the following:

GRAB	for grab
COMP	for composite
FBLK	for field blanks
RNST	for rinsates
DUP	for duplicate samples.

5.2.2.5 Planned Date. This is the planned sample collection start date.

5.2.3 Sample Location Fields

The sample location fields group pinpoints the exact location for the sample in three-dimensional space, starting with the general AREA, narrowing the focus to an exact location geographically, and then specifying the DEPTH in the depth field.

5.2.3.1 Area. The AREA field identifies the general WAG (in this case, TAN) sample-collection area. The AREA field will contain the standard identifier from the INEEL area being sampled. For this project, the AREA field will say TAN, for Test Area North.

5.2.3.2 Location. The LOCATION field will contain the grid identifier, if applicable. The XY coordinates should be included in the northing and easting columns or geographic positioning system information column and will correspond to the location of the sample. Data in this field will normally be subordinate to the AREA. This information is included on the labels generated by the SMO to aid sampling personnel.

5.2.3.3 Type of Location. The TYPE OF LOCATION field will provide descriptive information concerning the exact sample location.

5.2.3.4 Depth. The DEPTH of a sample location will correspond to the depth of the collected shallow surface soil sample. Not applicable to secondary waste samples.

5.2.3.5 Matrix/Media. The matrix for a sample will be entered as "soil," "waste" or "liquid" based on the sample.

5.2.4 Analysis Type

The ANALYSIS TYPE fields indicate analytical types (radiological, chemical). Space is provided at the bottom of the form to clearly identify each type. A standard abbreviation should also be provided, if possible.

6. SAMPLING PROCEDURES

The following sections describe the planned sampling and analyses described in this FSP. Prior to commencement of soil sampling activities, a presampling meeting will be held to review the requirements of the FSP and HASP and ensure supporting documentation has been completed.

6.1 Sampling Requirements

Sampling activities will include field screening for organic and radiological contaminants for personnel health and safety purposes, in accordance with the project-specific HASP. Field screening for alpha and beta/gamma radiation will be performed. The HSO and RCT will determine the use of radiological screening instrumentation for health and safety purposes. Calibration of instruments will be performed in accordance with appropriate procedures and the QAPjP (DOE-ID 2000). Radiological contaminants will be identified when screening indicates a reading of 100 cpm above background levels.

All soil sampling procedures will be discussed each day in a presampling meeting. The meeting discussion will include, but not be limited to, sampling activities for the day, responsibilities of team members, and safety issues. Separate meetings will be held to discuss sampling of unique and uncharacterized secondary waste streams.

Before soil sample collection is initiated, an equipment rinsate will be collected. As discussed in Section 7.1.2, the field team members will use the field guidance forms from the SMO to ensure the proper jars and preservatives are used for each analysis type. The anticipated equipment needs are listed in Section 7.2, "Sample Equipment and Handling."

The following subsections describe the field survey, soil sampling, and secondary waste sampling that will be performed by the sampling team to obtain the data needs delineated in this FSP and detailed in the project DQO workbook. Field deviations from the SAP table presented in Appendix A will be in accordance with MCP-230, "Environmental Restoration Document Control Center Interface."

6.1.1 Field Survey

The field surveys will screen beta/gamma emitters using hand held survey instrumentation. The presence of VOCs will be determined using photo or flame ionization detectors or field immunoassay kits.

6.1.2 Excavation Floor Soil Sampling under Tanks V-1, V-2, and V-3

Following excavation, the soil floor will be surveyed and grid-sampling locations identified. Shallow surface soil samples from spring line depths will be collected using hand tools. Samples below the spring line shallow surface will be collected using hand-held manual and power augers. All specified soil sampling is routine, and established WESTON sampling procedures will be implemented.

6.1.3 Excavation Floor Soil Sampling under V-9, TAN-1704 Valve Pit, and Ancillary Piping Sections

Following excavation, the soil floor will be surveyed and sample locations identified as described in Section 4.2.2 of this FSP. Shallow surface soil samples will be collected from the spring line floor of the excavation using hand tools and/or manually operated augers. All specified soil sampling is routine, and established WESTON sampling procedures will be implemented.

6.1.4 Secondary Waste Sampling

Secondary waste will be characterized primarily by process knowledge and historical data. When uncertainty exists regarding the source of secondary waste contamination, the waste will be characterized by sample analysis. Hazardous waste determinations must be made pursuant to the requirements set forth by Waste Generator Services (WGS) MCPs (MCP-62, MCP-63, MCP-69, and MCP-70), the *Idaho National Engineering Laboratory Reusable Property, Recyclable Materials, and Waste Acceptance Criteria (RRWAC)* (DOE-ID 1999b), and the *Waste Certification Plan for the Environmental Restoration Program* (INEEL 1997).

6.1.5 Field Decontamination

Field decontamination procedures will be designed to prevent cross-contamination between locations and samples and prevent offsite contaminant migration. Equipment associated with the field surveys and soil sampling will be thoroughly decontaminated prior to daily activities and between sample locations. Following decontamination, sampling equipment will be wrapped in foil to prevent contamination from windblown dust. Wet wipes will be used for decontamination. Sample blanks are collected to demonstrate background levels and decontamination. The use of free liquids will be minimized.

6.1.6 Personal Protective Equipment

The PPE required for these sampling efforts is discussed in the project HASP and may include, but not be limited to:

- Gloves
- Respirator cartridges
- Shoe covers
- Anti-contamination coveralls/clothes.

Prior to disposal, all PPE will be characterized based on sample and health and safety field screening results. A hazardous waste determination will be made pursuant to the requirements set forth by WGS MCPs (MCP-62, MCP-63, MCP-69, and MCP-70), the *Idaho National Engineering Laboratory Reusable Property, Recyclable Materials, and Waste Acceptance Criteria* (DOE-ID 1999b), and the *Waste Certification Plan for the Environmental Restoration Program* (INEEL 1997).

6.1.7 Shipping Screening

All samples collected from radiologically contaminated areas will be field screened for external contamination by the RCT prior to being released from the project work site. The RCT will determine if samples meet the release criteria, as documented in the radiological work permit. In accordance with DOT regulations and current company policies, a company-certified hazardous materials shipper will transfer all hazardous materials.

6.2 Handling and Disposition of Remediation-Derived Waste

All waste streams that are generated as a result of the sampling activities will be containerized and maintained at TAN until activities have been completed. At the conclusion of sampling operations, sanitary wastes will be disposed at the INEEL landfill under the protocols identified in the INEEL

RRWAC (DOE-ID 1999b). Contaminated PPE, wipes, and other material will be managed as secondary waste. These wastes will be managed as CERCLA remediation-derived waste and will be stored in accordance with MCP-3475, "Temporary Storage of CERCLA-Generated Waste at the INEEL." The WGS interface will assist in packaging and transporting the waste and will aid in ensuring compliance with applicable waste storage, characterization, treatment, and disposal regulations.

Waste streams that will be generated as a result of the sampling may include (but not be limited to) disposable, combustible PPE; sample supplies and equipment; decontamination water (which may be used in small quantities during sampling); and excess or spent samples. Sample supplies, equipment, and PPE will be placed in drums or other appropriate containers and stored until ultimate disposition. If decontamination water, which may include deionized water, soap, and small quantities of isopropanol, is generated, it will be managed with the final waste at the work site. The amount of decontamination fluids produced will be minimized with the use of spray bottles to apply the fluids or to apply the fluid to wipes.

Samples will be handled in accordance with MCP-2864, "Sample Management." In the event that the sample material is returned from the laboratory, only the unused, unaltered portions of the samples in their original containers will be accepted. These unaltered samples will be combined with the containerized V-Tank waste. Containers of returned sample material will be added to existing waste streams, unless they have been altered, which changes the waste profile. In the event that altered sample material from the laboratory is returned, the material will be segregated and placed in drums or other appropriate containers and stored until its ultimate disposition.

Analytical results from the previous historical data will be used to perform a hazardous waste determination in accordance with 40 CFR 262.11 and WGS MCPs (MCP-62, MCP-63, MCP-69, and MCP-70) and will dictate proper management and timely disposal of the waste streams. Waste will also be handled and dispositioned in accordance with the project Waste Management Plan.

6.2.1 Solid Sanitary Wastes

Solid sanitary waste includes all paper, packaging, absorbent towels, and other miscellaneous waste generated during sample preparation. Packaging that does not come in contact with the tank contents may be considered sanitary waste because it does not contain a radioactive or hazardous component. The small quantity of this type of waste expected to be generated will be placed in clear 208-L (55-gal) trash bags.

No waste generated in a radiologically controlled area will be placed with nonradiological (cold) waste without first being surveyed by a RCT and released as clean. When full, each bag will be taped shut, marked with the generating work site name and a generator contact name and phone number, and documented in the FTL's logbook. The bags will be surveyed by an RCT prior to being placed in a facility cold waste dumpster with other waste destined for disposal at the Central Facilities Area Landfill complex. The dates of disposal and quantities of cold waste disposed will be noted in the FTL or project logbook. Used "conditional waste" materials (i.e., yellow Tyveks, yellow poly materials, and PPE gloves that include the radiation symbol) found to be free of radiological contamination will be handled and disposed of according to the RRWAC.

6.2.2 Other Waste

Other waste may consist of PPE, sampling debris, and other secondary waste. The PPE that is stained or contains tank content waste will be managed as mixed low-level radioactive, F001-listed, Toxic Substances Control Act-regulated waste. During sampling activities, personnel will be required to wear PPE, as outlined in the project HASP. Other waste streams include contaminated debris and expended filter media. After exiting a radiologically controlled zone and doffing PPE, personnel will place the PPE in clear plastic bags. Sampling debris may include, but not be limited to, absorbent wipes, smears, and

plastic sheeting and sleeving used for contamination control. Each bag of waste will be surveyed by an RCT and marked with an identifying number and the survey results. The taped bags will be containerized for treatment and/or disposal with other V-Tank waste streams or may be sent to another approved treatment/disposal facility. Each container will be marked with the following information:

- Radiation level at contact (mrem/hr)
- Gross weight (lb)
- Generating facility identification
- Date of generation.

Prior to shipment to the disposal site, each container will be sealed in accordance with the requirements of the RRWAC (DOE-ID 1999b) or the appropriate disposal facility's waste acceptance criteria. Care should be taken to ensure that all containers used to store waste or sampling equipment are in a "like-new" condition.

Following completion of sampling, the individual waste streams destined for disposal will be approved and prepared for disposal in accordance with the Waste Management Plan.

6.2.3 Waste Minimization

Waste minimization for the project will be primarily achieved through design and planning to ensure efficient operations that minimize unnecessary waste generation. As part of the prejob briefing, an emphasis will be placed on waste reduction philosophies and techniques, and personnel will be encouraged to continuously attempt to improve methods. No one will use, consume, spend, or expend equipment or materials thoughtlessly or carelessly. Practices to be instituted to support waste minimization include, but are not limited to, the following:

- Restricting material (especially hazardous material) entering radiological buffer areas to those needed for performance of work
- Substituting recyclable or burnable items for disposable items
- Reusing items when practical
- Segregating contaminated from uncontaminated waste
- Segregating reusable items such as PPE and tools.

7. DOCUMENTATION MANAGEMENT AND SAMPLE CONTROL

Section 7.1 summarizes document management and sample control. Documentation includes field logbooks used to record field data and sampling procedures, photographic documentation, chain-of-custody forms, and sample container labels. Section 7.2 outlines the sample handling and discusses chain-of-custody, radiological screening, and sample packaging for shipment to the analytical laboratories.

7.1 Documentation

The FTL will be responsible for controlling and maintaining all field documents and records, and for ensuring that all required documents are submitted to the ER Administrative Record and Document Control offices at the conclusion of the project. Record keeping will be conducted in accordance with MCP-557, "Managing Records."

Sample documentation, shipping, and custody procedures for this project are based on EPA-recommended procedures that emphasize careful documentation of sample collection and sample transfer. The appropriate information pertaining to each sample will be recorded in accordance with MCP-231, "Logbooks for ER and D&D&D Projects;" MCP-244, "Chain-of Custody, Sample Handling, and Packaging for CERCLA Activities;" and the QAPjP (DOE-ID 2000). All personnel involved with handling, managing, or disposing samples will be trained in accordance to MCP-2864, "Sample Management," and all samples will be disposed accordingly.

A document action request is required when field conditions dictate making any change (i.e., requiring additional analyses to meet appropriate waste acceptance criteria) to this FSP, the project HASP, or project procedures. If necessary, a document action request will be executed in accordance with MCP-230, "Environmental Restoration Document Control Center Interface."

All information recorded on project documentation will be made in permanent ink. All errors will be corrected by drawing a single line through the error and entering the correct information, and all corrections will be initialed and dated. In addition, photographs will be taken to document field-sampling activities.

7.1.1 Sample Container Labels

Waterproof, gummed labels generated from the IEDMS database will display information such as the sample identification number, the name of the project, sample location, depth, and requested analysis type. In the field, label information will be completed and placed on the containers before the samples are collected. Information concerning sample date, time, preservative used, field measurements of hazards, and the sampler's initials will be recorded during field sampling.

7.1.2 Field Guidance Forms

Field guidance forms, provided for each sample location, will be generated from the IEDMS database to ensure unique sample numbers. These forms are used to facilitate sample container documentation and organization of field activities and contain information regarding the following:

- Media
- Sample identification numbers

- Sample location
- Aliquot identification
- Analysis type
- Container size and type
- Sample preservation methods
- Field logbooks.

In accordance with the Administrative Records and Document Control format, field logbooks will be used to record information necessary to interpret the analytical data. All field logbooks will be controlled and managed according to MCP-231, "Logbooks for ER and D&D&D Projects." The FTL, or designee, will ensure by periodic inspection that the field logbooks are being maintained in accordance with this MCP. The field logbooks will be submitted to the project files at the completion of field activities.

7.1.2.1 Sample Logbooks. The field teams will use the sample logbooks. Each sample logbook will contain information such as:

- Physical measurements (if applicable)
- All QA/QC samples
- Shipping information (e.g., collection dates, shipping dates, cooler identification number, destination, chain-of-custody number, and name of shipper).

7.1.2.2 FTL's Daily Logbook. A project logbook maintained by the FTL will contain a daily summary of:

- All the team activities
- Problems encountered
- Visitors
- List of work site contacts.

This logbook will be signed and dated by the FTL or designee at the end of each day's sampling activities.

7.1.2.3 Field Instrument Calibration/Standardization Logbook. A logbook containing records of calibration data will be maintained for each piece of equipment requiring periodic calibration or standardization. This logbook will contain logsheets to record the date, time, method of calibration, and instrument identification number.

7.2 Sample Equipment and Handling

Analytical samples for laboratory analyses will be collected in precleaned bottles and packaged according to American Society for Testing and Materials or EPA-recommended procedures. The QA/QC samples will be included to satisfy the QA/QC requirements for the field operation, as outlined in the QAPjP (DOE-ID 2000). Qualified (SMO-approved) analytical and testing laboratories will analyze these samples.

7.2.1 Sample Equipment

Included below is a tentative list of equipment and supplies. This list is as extensive as possible, but not exhaustive, and should only be used as a guide. Other equipment and supplies specified in the project-specific HASP and revised TPRs are not included in this section. Field sampling and decontamination equipment may include:

- Tape measure (30.5 m [100 ft])
- Stainless steel or aluminum composting pans
- Stainless steel sampling spoons
- Manual soil auger
- Hand-held power soil auger
- Coolers
- Blue Ice
- Paper wipes
- Plastic garbage bags
- Deionized water (20 L [5.3 gal] minimum)
- Nonphosphate-based soap
- Isopropanol
- Spray bottles
- Aluminum foil
- Pipe wrench
- Crescent wrench
- Hammer
- Tables

- Certified ultra-pure water (5-L [1.3-gal] JT Baker)
- Sample and shipping logbook
- FTL logbook
- Controlled copies of the FSP, QAPjP, HASP, and applicable referenced procedures
- Black-ink pens
- Black ultra-fine markers
- Sample containers, as specified in the QAPjP
- Preprinted sample labels and field guidance forms
- Nitrile or latex gloves
- Leather work gloves
- Resealable plastic bags (such as Ziploc®)
- Custody seals.

Sample preparation and shipping supplies may include:

- Pipettes
- pH paper
- Nitrile or latex gloves
- Paper wipes
- Parafilm
- Clear tape
- Strapping tape
- Resealable plastic bags, various sizes (such as Ziploc®)
- Chain-of-custody forms
- Shipping request forms
- Names, addresses, telephone numbers, and contact names for analytical laboratories
- Task order SOWs for analytical laboratories and associated purchase order numbers

- Vermiculite or bubble-wrap (packaging material)
- Plastic garbage bags
- Blue Ice
- Coolers
- "This side up" and "Fragile" labels
- Address labels
- Sample bottles and lids
- Custody seals.

7.2.2 Sample Containers

Tables 3-1 and 3-2 in the QAPjP (DOE-ID 2000) identify the container volumes, types, holding times, and preservative requirements that apply to all solid and liquid samples being collected under this FSP. All containers will be precleaned (usually certified by the manufacturer) with the appropriate EPA-recommended cleaning protocols for the bottle type and sample analyses. Extra containers will be available in case of breakage, contamination, or collection of additional samples. Prior to use, preprinted labels with the name of the project, sample identification number, location, depth, and requested analysis will be affixed to the sample containers.

7.2.3 Sample Preservation

Liquid samples will be preserved in a manner consistent with the QAPjP (DOE-ID 2000). If cooling is required for preservation, the temperature will be checked periodically prior to shipment to certify adequate preservation for those samples requiring temperatures at 4°C (39°F) for preservation. Ice chests (coolers) containing frozen reusable ice will be used to chill samples in the field after collection, if required.

7.2.4 Chain-of-Custody Procedures

The chain-of-custody procedures will be followed per MCP-244, "Chain-of-Custody, Sample Handling, and Packaging for CERCLA Activities" and the QAPjP (DOE-ID 2000). Sample bottles will be stored in a secured area accessible only to the field team members.

7.2.5 Transportation of Samples

Samples will be shipped in accordance with the regulations issued by the DOT (49 CFR Parts 171 through 178) and EPA sample handling, packaging, and shipping methods (40 CFR 262). All samples will be packaged in accordance with the requirements set forth in MCP-244, "Chain-of Custody, Sample Handling, and Packaging for CERCLA Activities."

7.2.5.1 Custody Seals. Custody seals will be placed on all shipping containers to ensure that tampering or unauthorized opening will not compromise sample integrity. The seal will be attached in such a way that opening the container requires that the seal be broken. Clear plastic tape will be placed over the seals to ensure that the seals are not damaged during shipment. Seals will be affixed to containers before the samples leave the custody of the sampling personnel.

7.2.5.2 Onsite and Offsite Shipping. An on-Site shipment is any transfer of material within the perimeter of the INEEL. Work site-specific requirements for transporting samples within work site boundaries, in addition to those required by the shipping/receiving department, will be followed. Shipment within the INEEL's boundaries will conform to DOT requirements, as stated in 49 CFR. Although not anticipated, any off-Site sample shipment will be coordinated with INEEL Packaging and Transportation personnel, as necessary, and will conform to all applicable DOT requirements.

7.3 Documentation Revision Requests

Revisions to this document will follow MCP-230, "Environmental Restoration Document Control Center Interface."

8. REFERENCES

29 CFR 1910.120, July 2000, "Hazardous Waste Operations and Emergency Response," *Code of Federal Regulations*, Office of the Federal Register.

40 CFR 262.11, July 2000, "Protection of the Environment," Part 262, "Standards Applicable to Generators of Hazardous Waste," Subpart .11, "EPA Identification Number," *Code of Federal Regulations*, Office of the Federal Register.

40 CFR 262, July 2000, "Protection of the Environment," Part 262, "Standards Applicable to Generators of Hazardous Waste," *Code of Federal Regulations*, Office of the Federal Register.

49 CFR 171 through 178, July 2000, "Transportation," Parts 171 through 178, "General Information, Regulations, and Definitions, Hazardous Materials Tables, and Shipping and Packaging Requirements," *Code of Federal Regulations*, Office of the Federal Register.

54 FR 48184, 2000, "National Priorities List of the National Oil and Hazardous Substances Pollution Contingency Plan," *Federal Register*, Office of the Federal Register.

Blackmore, C.S. to J.T. Taylor, March 10, 1998, "Criticality Safety Issues Associated with the TAN V-Tanks."

DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory*, U.S. Department of Energy Idaho Field Office, U.S. Environmental Protection Agency, Region 10, Idaho Department of Health and Welfare, 1088-06-29-120.

DOE-ID, 1997, *Comprehensive Remedial Investigation/Feasibility Study (RI/FS) for the Test Area North (TAN) Operable Unit (OU) 1-10 at the Idaho National Engineering and Environmental Laboratory*, Department of Energy Idaho Operations Office, DOE/ID-10557, Revision 0, November 1, 1997.

DOE-ID, 1998, *Field Sampling Plan for Test Area North TSF-09, TSF-18, and TSF-26 Area Soils*, Department of Energy Idaho Operations Office, DOE/ID-10635, Revision 0, June 1, 1998.

DOE-ID, 1999a, *Final Record of Decision for Test Area North, Operable Unit 1-10*, Department of Energy Idaho Operations Office, DOE/ID-10682, Revision 0, December 14, 1999.

DOE-ID, 1999b, *INEL Reusable Property, Recyclable Materials, and Waste Acceptance Criteria (RRWAC)*, Department of Energy Idaho Operations Office, DOE/ID-10381, Revision 1, February 1994.

DOE-ID, 2000, *Quality Assurance Project Plan for WAG 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites*, Department of Energy Idaho Operations Office, DOE/ID-10587, Revision 6, September 2000.

DOE-ID, 2001, *TSF-09/18 WAG 1, OU 1-10 Remedial Design/Remedial Action Work Plan*, Department of Energy Idaho Operations Office, DOE/ID-10875, Revision 0.

EPA, 1988, *Guidance for Conducting Remedial Investigations and Feasibility Studies under Comprehensive Environmental Response, Compensation, and Liability Act*, OSWER Directive 9355.3-01, U.S. Environmental Protection Agency.

EPA, 1990, "National Oil and Hazardous Substances Contingency Plan," *Federal Register*, Volume 55, U.S. Environmental Protection Agency.

EPA, 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," ANSI/ASQC E-4, December 20, U.S. Environmental Protection Agency.

EPA, 1996, *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846)*, Third Edition, Final Update III, dated December 1996 (or most recent).

Gilbert, R.O., 1987, "Statistical Methods for Environmental Pollution Monitoring," John Wiley & Sons; ISBN: 0471288780.

INEEL, 1997, *Waste Certification Plan for the Environmental Restoration Program*, Idaho National Engineering and Environmental Laboratory, INEL-96/0043, Revision 1, October.

INEEL, 1998, *Implementing Project Management Plan for the Idaho National Engineering and Environmental Laboratory Remediation Program*, Idaho National Engineering and Environmental Laboratory, INEEL/EXT-97-00032, Revision 5, June.

INEEL, 2000, *Data Quality Objectives Summary Reports for V-Tank (TSF-09 and TSF-18)*, EDF-ER-193, Idaho National Engineering and Environmental Laboratory, INEEL/EXT-2000-00813, December.

MCP-62, July 1999, "Waste Generator Services—Low-Level Waste Management," Revision 2, *Manual 17-Waste Management*, Environmental Protection and Compliance.

MCP-63, August 1999, "Waste Generator Services—Conditional Industrial Waste Management," Revision 2, *Manual 17-Waste Management*, Environmental Protection and Compliance.

MCP-69, December 2000, "Waste Generator Services—Hazardous Waste Management," Revision 3, *Manual 17-Waste Management,* Environmental Protection and Compliance.

MCP-70, December 2000, "Waste Generator Services—Mixed Low-Level Waste Management," Revision 4, *Manual 17-Waste Management*, Environmental Protection and Compliance.

MCP-227, September 1999, "Sampling and Analysis Process for CERCLA and D&D&D Activities," Revision 8, *Manual 18-Closure Management*, Environmental Restoration.

MCP-230, 1996, "Environmental Restoration Document Control Interface," latest revision, *Environmental Restoration Management Control Procedures Manual*, Environmental Restoration.

MCP-231, July 2000, "Logbooks for ER and D&D&D Projects," Revision 4, *Manual 18-Closure Management*, Environmental Protection and Compliance.

MCP-241, August 1996, "Preparation of Characterization Plans," Revision 2, *Environmental Restoration Management Control Procedures Manual*, Environmental Protection and Compliance.

MCP-244, September 1999, "Chain-of-Custody, Sample Handling, and Packaging for CERCLA Activities," Revision 3, *Manual 18-Closure Management*, Environmental Restoration.

MCP-557, July 2001, "Managing Records," Revision 6, *Manual 1-General Administration and Information*, Administration and Information Management.

MCP-2864, September 1999, "Sample Management," Revision 3, *Manual 18-Closure Management*, Environmental Restoration.

MCP-3449, June 2001, "Safety and Health Inspections," Revision 2, *Manual 14A-Safety and Health-Occupational Safety and Fire Protection*, Safety and Fire Protection.

MCP-3472, August 1999, "Identification and Characterization of Environmentally Regulated Waste," Revision 0, *Manual 17-Waste Management*, Engineering and Research Conduct of Engineering Configuration Management, Systems Engineering and Engineering Change Control.

PRD-183, July 2000, "Radiation Protection-INEEL Radiological Control Manual," Revision 6, *Manual 15A-Radiation Protection-INEEL Radiological Control*, Radiation Protection Department.

Safety and Health Department, 2001, *Safety and Health Manual.*

SOP-11.5, 1994, "Field Decontamination of Sampling Equipment."

TPR-80, 1999, "Radiological Data Validation."